

In re Applicant:

GLOVER, JOHN N.

Filed: May 27, 1999

Application No.: 09/320, 950

For: FILTERING MEDIUM AND
METHOD FOR CONTACTING SOLIDS
CONTAINING FEEDS FOR CHEMICAL
REACTORS

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Art Unit: 1723

Examiner: David L. Sorkin

Docket No.: 2797.004

CLAIMS

Please cancel claims 46 – 58.

Please add claims 59 – 75, as follows.

59. A method of fluid distribution in a chemical reactor comprising the steps of:

providing a layer of a plurality of ceramic filter units, each of the ceramic filter units including a body having at least three auxiliary openings extending through the body and positioned between a medial portion of the ceramic filter unit and an outer periphery of the body so that the at least three auxiliary openings define a plurality of fluid flow passageways extending through each of the plurality of ceramic filter units, and at least one of the plurality of fluid flow passageways having a peripheral shape selected from the group consisting of ellipses and trisoids;

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contacting an organic-based feed stream with the layer of the plurality of ceramic filter units; and

subdividing the organic-based feed stream into a plurality of smaller fluid streams by passing the organic-based feed stream through the plurality of fluid flow passageways prior to the organic-based feed stream contacting a catalyst bed in the chemical reactor.

60. A method as defined in claim 59, further including the steps of: removing contaminants from a contaminated organic-based feed stream; and providing a decontaminated and uniformly spread organic-based feed stream to a catalyst bed for further processing in the chemical reactor.

61. A method as defined in claim 59, including a step of utilizing ceramic filter units wherein the outer periphery has a polygonal shape with a length of about $\frac{1}{8}$ inches to about 3 inches.

62. A method as defined in claim 59, including the step of packing the ceramic filter units into the chemical reactor with a packing factor of about 200 to 500 ft²/ft³.

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63. A method as defined in claim 59, including the step of packing the ceramic filter units in graduated layers into the chemical reactor with each layer having a different packing factor of about 200 to 500 ft²/ft³.

64. A method as defined in claim 59, wherein the body of at least one of the plurality of ceramic filter units has a fluted outer peripheral surface.

65. A method as defined in claim 59, including the step of utilizing ceramic filter units wherein the outer periphery has a polygonal shape having a plurality of sides, the configuration selected from the group consisting of triangles, quadrilaterals, squares, rectangles, pentagons, hexagons, heptagons, and octagons.

66. A method as defined in claim 59, including a step of utilizing ceramic filter units wherein the outer periphery has a substantially circular shape with a diameter of ¼ inches to 3 inches.

67. A method as defined in claim 59, including a step of utilizing ceramic filter units wherein the outer periphery has a square shape with a width of about ¼ inches to about 3 inches.

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68. A method as defined in claim 59, including a step of utilizing ceramic filter units wherein the outer periphery has an elliptical shape with a major axes of $\frac{3}{8}$ inches to 3 inches and a minor axes of about $\frac{1}{4}$ inches to about 2 inches.

69. A method as defined in claim 59, including a step of utilizing ceramic filter units wherein the outer periphery has a rectangular shape with a length of about $\frac{1}{4}$ inches to about 3 inches and a width of about $\frac{1}{4}$ inches to about 3 inches.

70. A method as defined in claim 59, including a step of utilizing ceramic filter units wherein the outer periphery has a closed-planed shape with a width of about $\frac{1}{4}$ inches to about 3 inches.

71. A method as defined in claim 59, wherein the outer peripheral includes a plurality of recessed notches extending inwardly from the outer periphery towards the medial portion of the ceramic filter unit.

72. A method of fluid distribution in a chemical reactor comprising the steps of:

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providing a layer of a plurality of ceramic filter units, each of the ceramic filter units including a body having a substantially annular outer peripheral shape, a central opening extending through the body, at least three auxiliary openings also extending through the body and positioned between the central opening and an outer periphery of the body so that a combination of the central opening and the at least three auxiliary openings define a plurality of fluid flow passageways extending through each of the plurality of ceramic filter units, and at least one of the plurality of fluid flow passageways having a peripheral shape selected from the group consisting of ellipses;

contacting an organic-based feed stream with the layer of the plurality of ceramic filter units; and

subdividing the organic-based feed stream into a plurality of smaller fluid streams by passing the organic-based feed stream through the plurality of fluid flow passageways prior to the organic-based feed stream contacting a catalyst bed in the chemical reactor.

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73. A method as defined in claim 72, further including the steps of: removing contaminants from a contaminated organic-based feed stream; and providing a decontaminated and uniformly spread organic-based feed stream to a catalyst bed for further processing in the chemical reactor.

74. A method as defined in claim 72, wherein the outer peripheral includes a plurality of notches recessed from the outer peripheral towards the medial portion of the ceramic filter unit.

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